LG
Life's Good

ENGLISH

INSTALLATION MANUAL

AHU COMMUNICATION KIT

- Please read this installation manual completely before installing the product.
- Installation work must be performed in accordance with the national wiring standards by authorized personnel only.
- Please retain this installation manual for future reference after reading it thoroughly.

MODEL : PRCKA1

P/NO : MFL50024808

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TIPS FOR SAVING ENERGY

Here are some tips that will help you minimize the power consumption when you use the air conditioner. You can use your equipment more efficiently by referring to the instructions below:

- Do not cool excessively indoors. This may be harmful for your health and may consume more electricity.
- Block sunlight with blinds or curtains while you are operating the equipment.
- Keep doors or windows closed tightly while you are operating the equipment.
- Adjust the direction of the air flow vertically or horizontally to circulate indoor air.
- Speed up the fan to cool or warm indoor air quickly, in a short period of time.
- Clean the air filter once every 2 weeks. Dust and impurities collected in the air filter may block the air flow or weaken the cooling / dehumidifying functions.

For your records

Staple your receipt to this page in case you need it to prove the date of purchase or for warranty purposes. Write the model number and the serial number here:

Model number : _____

Serial number : _____

You can find them on a label on the side of each unit.

Dealer's name : _____

Date of purchase : _____

IMPORTANT SAFETY INSTRUCTIONS

READ ALL INSTRUCTIONS BEFORE USING THE APPLIANCE.

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product.

WARNING

It can result in serious injury or death when the directions are ignored.

CAUTION

It can result in minor injury or product damage when the directions are ignored.

WARNING

- Installation or repairs made by unqualified persons can result in hazards to you and others.
- Installation must conform with local building codes or, in the absence of local codes.
- The information contained in the manual is intended for use by a qualified service technician familiar with safety procedures and equipped with the proper tools and test instruments.
- Failure to carefully read and follow all instructions in this manual can result in equipment malfunction, property damage, personal injury and/or death.

Installation

- Always perform grounding.
  - Otherwise, it may cause electrical shock.
- Don’t use a power cord, a plug or a loose socket that is damaged.
  - Otherwise, it may cause fire or electrical shock.
- For installation of the product, always contact the service center or a professional installation agency.
  - Otherwise, it may cause fire, electrical shock, explosion or injury.
- Securely attach the electrical part cover to AHU Comm. Kit.
  - If the electric part cover of AHU Comm. Kit is not attached securely, it could result in a fire or electric shock due to dust, water, etc.
- Always install an air leakage breaker and a dedicated switching board.
  - No installation may cause a fire and electrical shock.
- Do not keep or use flammable gases or combustibles near the equipment.
  - Otherwise, it may cause a fire or the failure of product.
- Do not install, remove or reinstall the unit by yourself.
  - Otherwise, it may cause a fire, electrical shock, explosion or injury.
- Do not disassemble or repair the product randomly.
  - It will cause a fire or electrical shock.
- Do not install the product in a place where there is the concern of falling down.
  - Otherwise, it may result in personal injury.
- Use caution when unpacking and installing.
  - Sharp edges may cause injury.

Operation

- Do not share the outlet with other appliances.
  - It will cause an electric shock or a fire due to heat generation.
- Do not use the damaged power cord.
  - Otherwise, it may cause a fire or electrical shock.
- Do not modify or extend the power cord randomly.
  - Otherwise, it may cause a fire or electrical shock.
- Take care so that the power cord may not be pulled during operation.
  - Otherwise, it may cause a fire or electrical shock.
- Unplug the unit if strange sounds, smell, or smoke comes from it.
  - Otherwise, it may cause electrical shock or a fire.
- Keep flames away.
  - Otherwise, may occur a fire.
- Take the power plug out if necessary, holding the head of the plug and do not touch it with wet hands.
  - Otherwise, it may cause a fire or electrical shock.
- Do not use the power cord near the heating tools.
  - Otherwise, it may cause a fire and electrical shock.
- Do not allow water to run into electrical parts.
  - Otherwise, it may cause the failure of machine or electrical shock.
- Hold the plug by the head when taking it out.
  - It may cause electric shock and damage.
- Be cautious that water could not enter the product.
  - Otherwise, it may cause a fire electrical shock or product damage.
- Do not step on the indoor/outdoor unit and do not put anything on it.
  - It may cause an injury through dropping of the unit or falling down.
- Do not place a heavy object on the power cord.
  - Otherwise, it may cause a fire or electrical shock.
- When the product is submerged into water, always contact the service center.
  - Otherwise, it may cause a fire or electrical shock.

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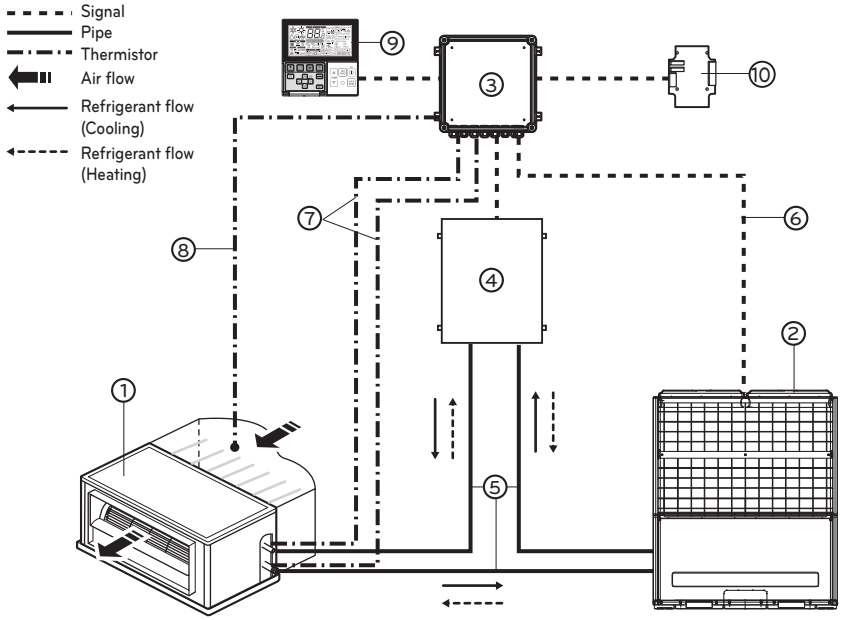
INSTALLATION SCENE

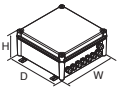
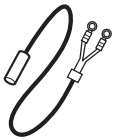
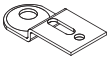


Parts and components		
No.	Name	Remarks
1	Air Handling Unit	Field supply
2	Outdoor Unit	Multi V
3	AHU Communication Kit(PRCKA1)	-
4	AHU EEV Kit(PRLK048A0/PRLK096A0)	-
5	Field piping	Field supply
Wiring connections		
6	Communication Kit Wiring	Power supply and communication between comm. kit and outdoor unit
7	Pipe thermistors (EBG61287703/EBG61287704)	Temp. sensing for refrigerant pipe
8	Room thermistor (EBG36949303)	Temp. sensing for room temp.
9	Remote controller(PQRCVSL0 / PQRCVSL0QW)	Optional accessory
10	Dry contact(PQDSBNGCM1)	Optional accessory

CAUTION

For Installation of Room thermistor (No. 8), always install that to the inlet of Heat Exchanger. Otherwise, it may cause to be not operating properly.

SUPPLIES

PRCKA1						
Compo-nents	AHU Comm. Kit	Room thermistor	Pipe thermistors	Installation Manual	Bracket	Option PCB
P/NO	AJT57850904	EBG61106821	EBG61287703(In) EBG61287704(Out)	MFL50024808	MAZ49398901	EBR52358907 ~17
Shape						
Quanti-ty(EA)	1	1	2(Each 1)	1	4	11(Each 1)

Model Name	Weight (kg)		Dimension (mm)						POWER
	NET	Gross	NET			Gross			
			W	H	D	W	H	D	
PRCKA1	2.7	4.0	280	135	280	420	179	394	220-240 V~ 50 Hz 220 V~ 60 Hz

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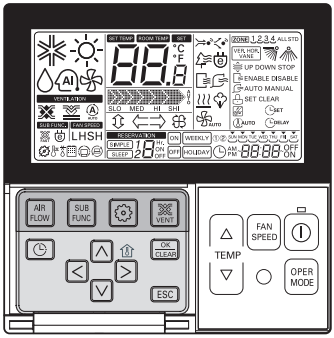
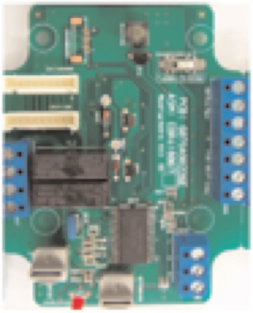
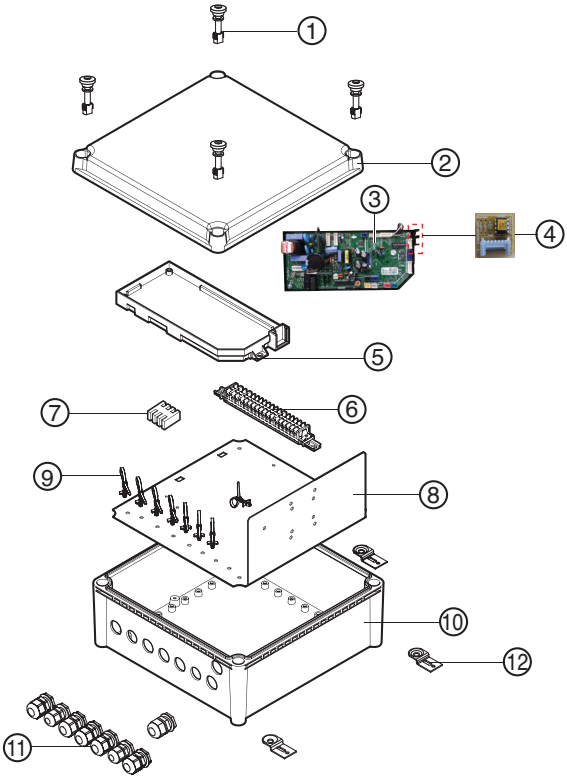
OPTIONAL ACCESSORIES

Accessories		
Components	Remote controller	Dry contact
Model name	PQRCVSL0 PQRCVSL0QW	PQDSBNGCM1
Shape		

* For further details of the accessories, refer to the manual provided at the time of purchasing the accessories.

PART DESCRIPTION

Communication Kit (PRCKA1)



No.	Part Name	Quantity(EA)
1	Plastic bolt	4
2	Control box cover	1
3	Main PCB	1
4	Option PCB(36k)	1
5	Main PCB case	1
6	Terminal block (communication)	1
7	Terminal block (POWER Supply)	1
8	Panel	1
9	Support Tie wrap	8
10	Control box case	1
11	Cable gland(2type)	8
12	Bracket	4

BEFORE INSTALLATION

⚠ CAUTION

- Don't install or operate the unit in rooms mentioned below.
  ① Where mineral oil, like cutting oil is present.
  ② Where the air contains high levels of salt such as air near the ocean.
  ③ Where sulphurous gas is present such as that in areas of hot spring.
  ④ In vehicles or vessels.
  ⑤ Where voltage fluctuates a lot such as that in factories.
  ⑥ Where high concentration of vapor spray are present.
  ⑦ Where machines generating electromagnetic waves are present.
  ⑧ Where acidic or alkaline vapor is present.
  ⑨ The option boxes must be installed with entrances downward.

- Check the mentioned below, when you apply the AHU (Field supply).
  ① If the AHU (Field supply) provided in the field is exclusively for heating, you must not change the operating mode to cooling on the remote controller. If not, it can cause electric shock, injury or death. If you want to operate in cooling mode, AHU (Field supply) must comply with the following details.
  (Following)
  - The insulation level of AHU (Field supply) motor must be 'F' or above, and the protection level must satisfy 'IP 54'.
  - AHU (Field supply) must have the drain pan installed.

  ② Fan speed button on the wired remote controller (PQRCVSL0 /PQRCVSL0QW) is not operated.
  ③ For refrigerant piping of outdoor unit, refer to the installation manual supplied with the outdoor unit.
  ④ For installation of the wired remote controller (PQRCVSL0 /PQRCVSL0QW), refer to the manual supplied with the wired remote controller.
  ⑤ For protecting the refrigerant cycle in heating, the inlet Air temperature to the Heat Exchanger has to be over 5 °C.
  ⑥ The EEV or TXV kit has to be installed on the AHU as close as possible to the Heat Exchanger.

- AHU Communication Kit
  ① Thermistor cable and remote controller wire should be located at least 50mm away from power supply wires and from wires to the controller. Not following this guideline may result in malfunction due to electrical noise.
  ② Use only specified wires, and tightly connect wires to the terminals. Keep wiring in neat order so that it does not obstruct other equipment. Incomplete connections could result in overheating, and in worse case electric shock or fire.

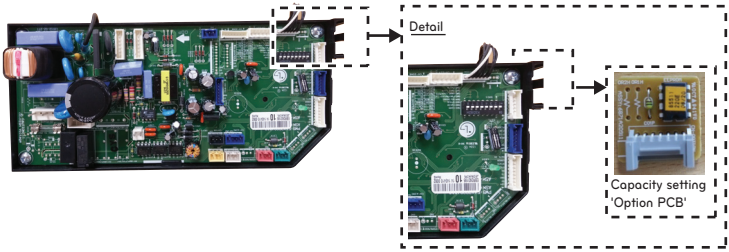
⚠ CAUTION

Selection of Evaporator(Air Handling Unit)

See table below for applicable units

Selecting the capacity setting 'Option PCB'(Accessory) according to the capacity mentioned below.

- The corresponding capacity setting 'Option PCB' needs to be selected depending on the need capacity.
- After checking the need capacity, remove the 36 k Option PCB equipped in the main PCB, and set up the Option PCB fitted the need capacity in the main PCB.



Option PCB P/NO	Capacity (Btu/h)	Standard heat exchanger volume ($10^{-3} \times m^3$)	Maximum heat exchanger capacity (kW)	Air Flow rate (CMM)
EBR52358907	28 k	2.7	8.6	22~26
EBR52358908	36 k	3.1	11	25~32
EBR52358909	42 k	3.4	13.8	31~35
EBR52358910	48 k	4.0	15.4	33~45
EBR52358911	76 k	5.4	22.2	50~64
EBR52358912	96 k	6.3	28.1	64~72
EBR52358914	115 k	7.3	33.7	72~88
EBR52358915	134 k	8.5	39.3	88~103
EBR52358916	153 k	9.5	45.4	103~116
EBR52358917	172 k	10.5	50.4	114~129
EBR52358913	192 k	11.2	56.2	121~137

* Evaporator Saturated Temperature(SST) = 6 °C, SH (Superheat) 5 K, Air Temperature = 27 °C DBT / 19 °C WBT

* Heat exchanger volume [m^3] : Tube cross-section area × Tube length

-. Tube cross-section area [m^2] = $\pi \times ID^2 / 4$

-. Tube length [m] = Tube length of 1 pipe × Tube step × Tube row

⚠ CAUTION

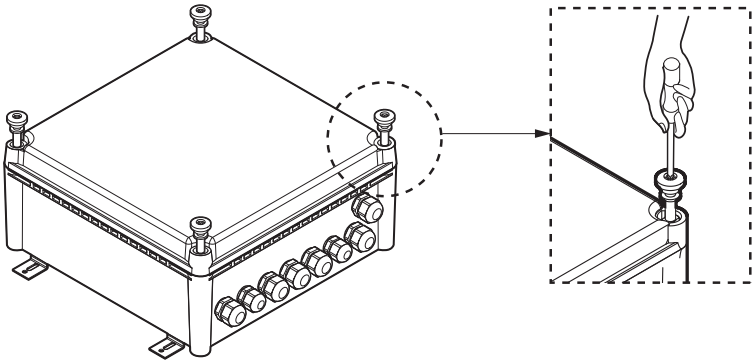
- AHU Operation range
  - For Installation of Room thermistor, always place it to the inlet of Heat Exchanger. Otherwise, it may might not operate properly.
  - Range of the inlet Air temperature to the Heat Exchanger is 18 ~ 40 °C for cooling & 5 ~ 30 °C for heating. If the temperature is under 18 °C for cooling & over 30 °C for heating, the system might operate ON and OFF because of protection logic system's.

No	Connection condition	Combination
1	100% Fresh Air Intake AHU only are connected with outdoor units	1) The total capacity of 100% Fresh Air Intake AHU should be 50~100% of outdoor unit.
2	Combination between IDU and 100% Fresh Air Intake AHU.	1) The total capacity of system's (IDU + 100% Fresh Air Intake AHU) should be 50~100% of outdoor unit.
		2) The total capacity of 100% Fresh Air Intake AHU should be less than 30% of the outdoor units.

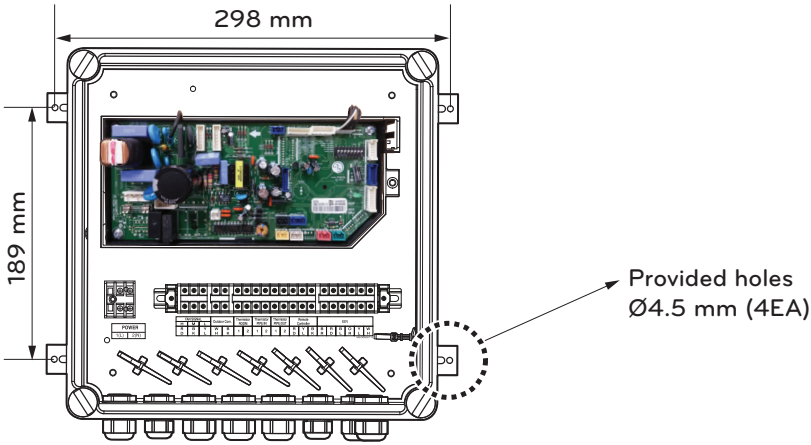
COMMUNICATION KIT INSTALLATION

Mechanical installation

1. Remove the Communication kit box cover by unscrewing the plastic bolt (4EA).



2. Drill 4 holes on correct position and fix the Communication kit box securely with 4 screws(Field supply) through the provided holes Ø4.5 mm (Reference the length of the holes Ø4.5)



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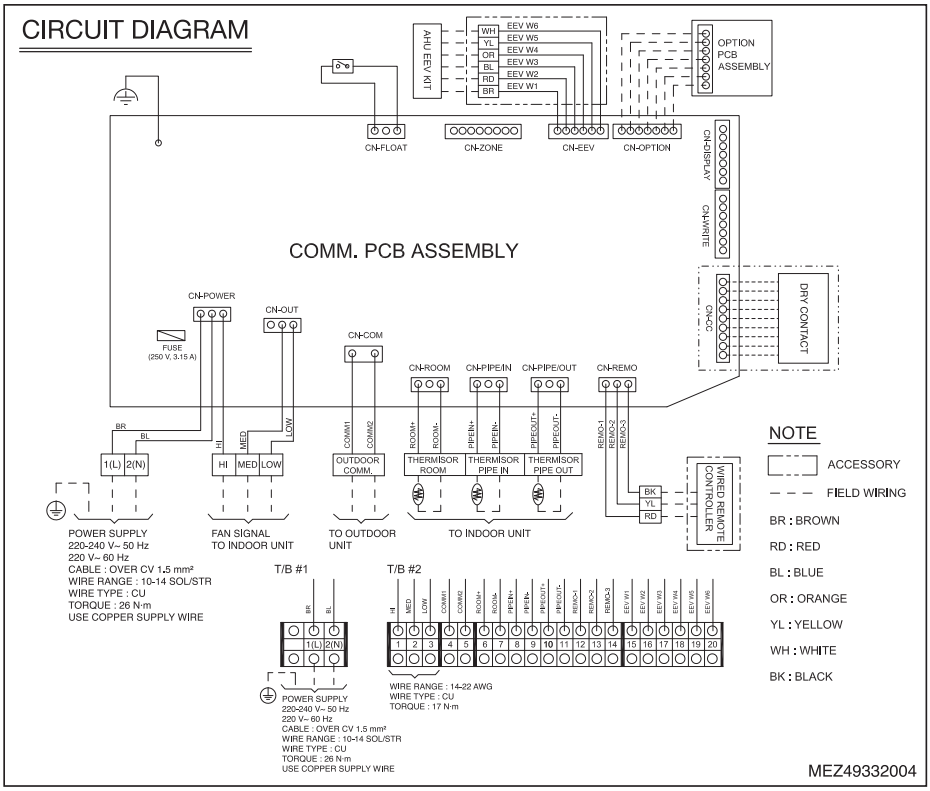
Electric Wiring Work

Circuit diagram

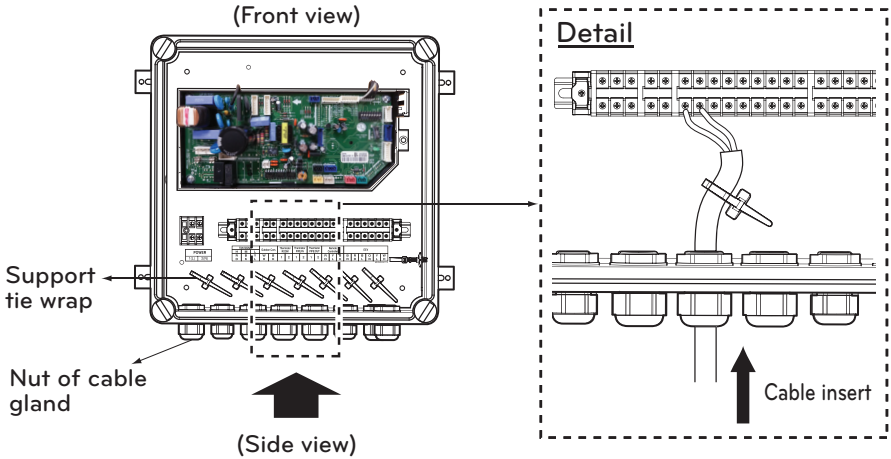


Terminal Block No.	Connection	Function	Remark.
1(L), 2(N)	Power Supply	220-240 V~ 50 Hz 220 V~ 60 Hz	-
1-3	To AHU	Fan Signal	HI / MID / LOW
4-5	To Outdoor Unit	Communication Line	Internet A, B
6-7	To AHU	Room Thermistor	-
8-9		Pipe In Thermistor	-
10-11		Pipe Out Thermistor	-
12-14		Remote Controller	-
15-20	To EEV Kit	EEV Kit	-

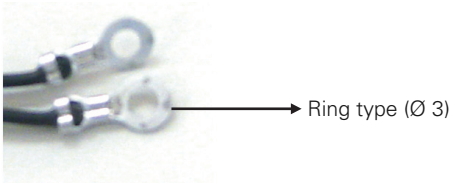
Electrical Work

Connection of the wires

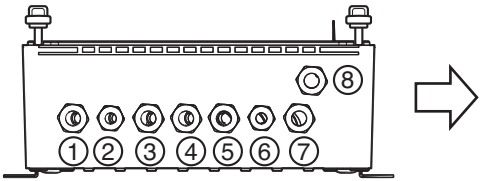
1. For connection to outdoor unit and to controller (Field supply) :
   Pull the wires inside through the cable gland and close the nut firmly in order to ensure a good pull relieve and water protection.
2. The wires require an additional pull-relief. Strap the wire with the support tie wrap.



3. For the wired remote controller wire and outdoor unit communication wire, remove the coating at the end of the wire to connect and use the ring type (Ø3) to connect to the terminal block.



4. Each wire have to pass the number of the cable gland mentioned below.



(Side view)

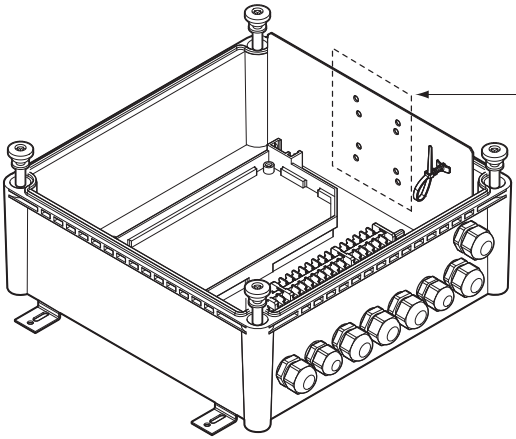
No.	Electric wire
①	POWER SUPPLY
②	FAN SIGNAL
③	Outdoor com.
④	Room thermistor
⑤	Pipe thermistor(In/Out)
⑥	Remote controller
⑦	EEV Kit
⑧	DRY contact

Electric Wiring Work

⚠ CAUTION

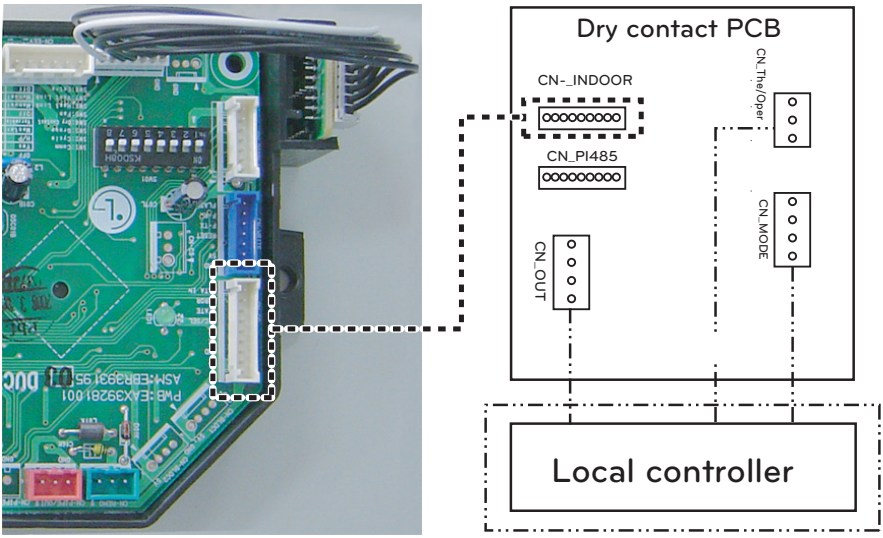
- All field supplied parts materials and electric works must be conform to local codes.
- Use copper wire only.
- All wiring must be performed by an authorized electrician.
- A main switch or other means for disconnection, having a contact separation in all poles, must be incorporated in the fixed wiring in accordance with relevant local and national legislation.
- Refer to the installation manual attached to the outdoor unit for the size of power supply electric wire connected to the outdoor unit, the capacity of the circuit breaker and switch, wiring and wiring instructions.

Dry contact connection_optional accessory



❊ Applicable dry contact model
- PQDSBNGCM1

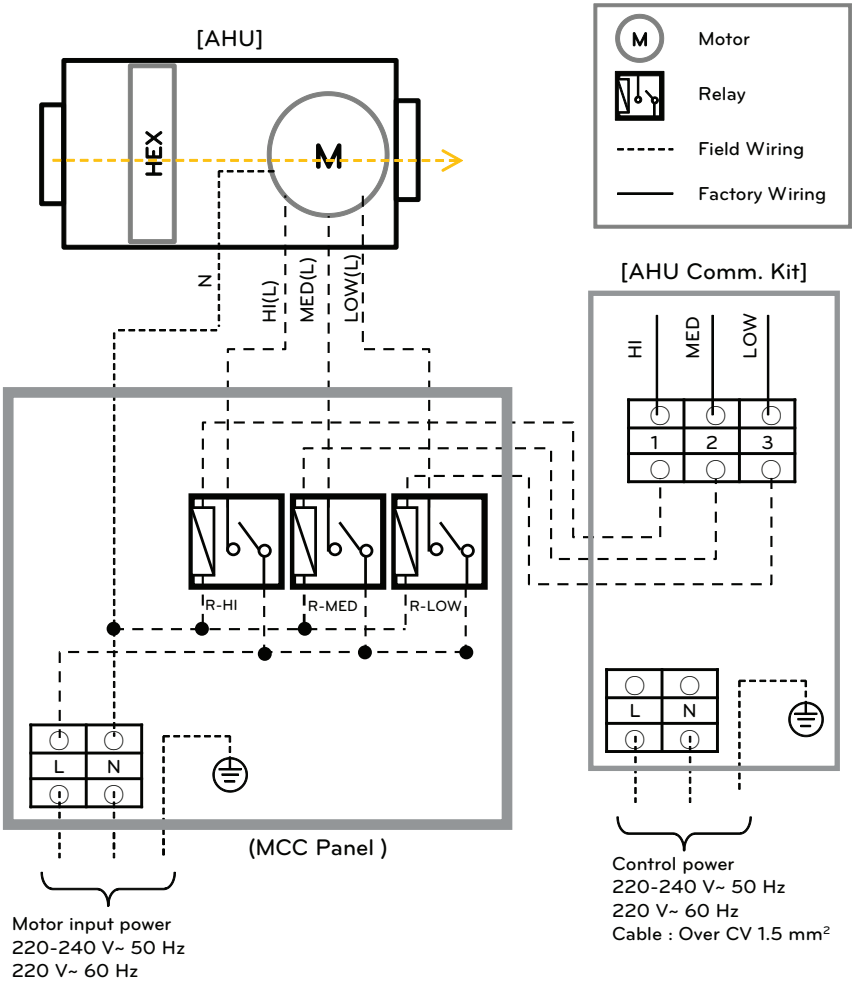
1. Using screw (4EA), fix the dry contact on the side panel.



Signal Field work

2. Using cable, connect the dry contact to main PCB.
For more information, please refer to dry contact installation manual.

FAN Signal Wiring Concept



CAUTION

- If the motor is On/Off type, HI/MED/LOW wire have to connect as common.
  For example, If you just connect HI wire to the motor(On/Off), motor is not operating according to our control logic.
- High, Middle, Low wire from AHU Comm. Kit should not be connected directly to the motor. Always use it as a motor for driving the relay contacts. Otherwise there is a risk of damage to product or a fire.

THERMISTORS INSTALLATION

Pipe thermistors Installation

Location of the pipe thermistors

A correct installation of the thermistors is required to ensure a good operation :

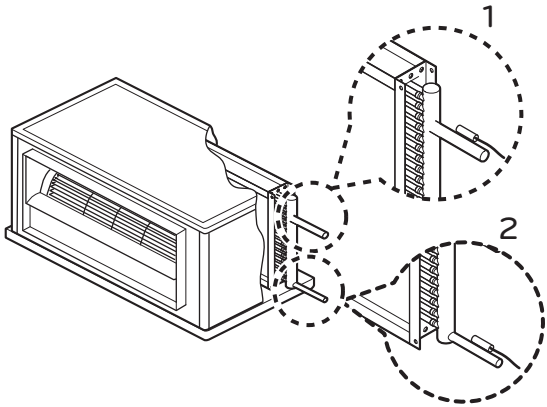
1 Pipe_In(EBG61287703)
: Install the thermistor behind the distributor on the coldest pass the heat exchanger (contact your heat exchanger dealer).

2 Pipe_Out(EBG61287704)
: Install the thermistor at the outlet of the heat exchanger as close as possible to the heat exchanger.

Evaluation must be done to check if the evaporator is protected against freeze-up.
Execute test operation and check for freeze-up.

1 Pipe_In(Suction pipe)

2 Pipe_Out(Discharge pipe)

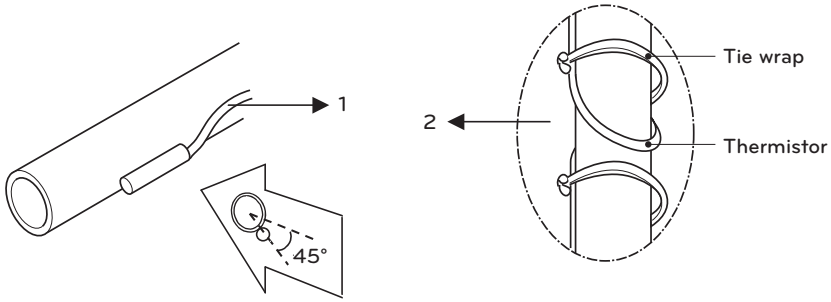


(Air Handling Unit)

Installation of the pipe thermistor cable

1 Put the thermistor cable in a separate protective tube.

2 Always add a pull-relief to the thermistor cable to avoid strain on the thermistor cable and loosening of the thermistor. Strain on the thermistor cable or loosening of the thermistor may result in bad contact and incorrect temperature measurement.



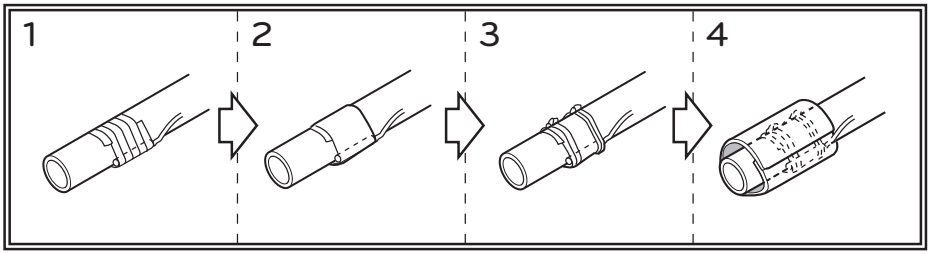
Fixation of the pipe thermistors (Field work)

1 Fix the thermistor with insulating aluminum tape (Field supply) in order to ensure a good heat transfer.

2 Put the supplied piece of rubber around the thermistor (EBG61287703/04) in order to avoid loosening of the thermistor after some years.

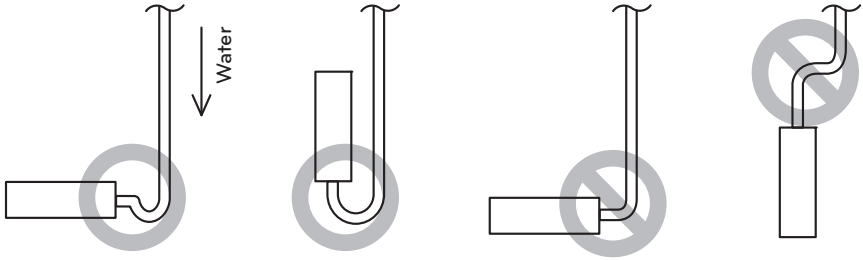
3 Fasten the thermistor with 2 tie wraps (Field Supply)

4 Insulate the thermistor with insulation sheet (Over 5t, Field Supply)

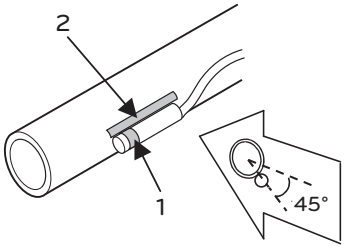


INSTRUCTION

- Put the thermistor wire slightly top to above water accumulation on down of the thermistor.



- For sensing the evaporator's temp. in thermistor, Put the upper port the thermistors on the evaporator, this is the most sensitive point of the thermistor.



1 Most sensitive point of the thermistor
2 Maximize the contact

TROUBLESHOOTING

Problem	Cause	Remedy
AHU Communication Kit does not work	No power supply	Check the electrical connection and voltage of the power supply.
	Wiring is wrong	Check the electrical connection of the Communication Kit (Refer to the circuit diagram of the Communication Kit)
	AHU Communication Kit is broken	Check the electrical and mechanical part.

[Error Code]

Display Number		Error Item	Cause of Error
CH	01	Room Temperature	Temperature sensor disconnection or short circuit on Room or RA of AHU
CH	02	Pipe In Temperature sensor error	Temperature sensor disconnection or short circuit on pipe inlet of AHU
CH	03	Communication error between wired remote controller and Comm. Kit	No communication signal for more than 3 minutes from wired remote controller to the Comm. Kit
CH	05	Communication error between Comm. Kit and Outdoor Unit	No communication signal for 5 minutes continuously from Comm. Kit to Outdoor Unit
CH	06	Pipe Out Temperature sensor error	Temperature sensor disconnection or short circuit on pipe outlet of AHU
CH	09	Option PCB EEPROM error	No reading signal for 5 times continuously from EEPROM to Comm. Kit

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